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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/044,888

01/11/2002

Alan Gatherer

TI-31639

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23494

7590

03/16/2005

TEXAS INSTRUMENTS INCORPORATED

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EXAMINER

TALAPATRA, ANIKA F

ART UNIT

PAPER NUMBER

2631

DATE MAILED: 03/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**Application No. **6**

10/044,888

Applicant(s)

GATHERER ET AL.

Examiner

Anika Talapatra

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/11/2002.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement (IDS) submitted on 11 January 2002 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action: A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-18 rejected under 35 U.S.C. 102(b) as being anticipated by Wang et al. (Iterative (Turbo) Soft Interference Cancellation and Decoding for Coded CDMA. IEEE Transactions on Communications, Vol. 47, No. 7, July 1999) (hereafter referred to as Wang).

As to claims 1 and 10, Wang teaches an apparatus and method for a wireless communication receiving system, comprising: an antenna for receiving a composite communication symbol that represents first and second communication symbols (part II, equations 1-4; figure 1,  $r(t)$ ), corresponding to the result of coding and interleaving operations in a transmitter (part II, equations 1-4; figure 1, transmitter end); a probability generator (part IIB, equations 5-7; figure 1, SISO multiuser detector) coupled to the antenna for generating a

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plurality of probabilities of the communication symbol that the communication symbol has ones of a plurality of possible values of the communication symbol; first and second soft-input soft-output (SISO) decoders (part III; figure 1, SISO channel decoder) coupled to the probability generator receiving therefrom the pluralities of probabilities for performing decoding operation on the plurality of probabilities; and a means for iterative decoding (part IIB; figure 1, deinterleaver, interleaver) to overcome intersymbol interference (ISI) and multiple-access interference (MAI) (part I, paragraph 3). The interleavers as taught by Wang, are functionally equivalent to a sequencer as taught by the applicant coupled to the SISO decoders for controlling the decoders such that one of the decoders performs decoding operation before another decoder (parts II and III).

As to claims 2 and 11, Wang teaches an apparatus and method for a wireless communication receiving system, comprising: wireless communication channel information includes information about both of the communication channels, in terms of ISI and MAI which cause noise in the communication signal (part I, paragraph 3; part II A-B).

As to claims 3 and 12, Wang teaches an apparatus and method for a wireless communication receiving system, comprising: wireless communication channel information includes information about the quality of both of the communication channels, in terms of the amount of ISI and MAI which cause noise in the communication signal (part I, paragraph 3; part II A-B).

As to claims 4 and 13, Wang teaches an apparatus and method for a wireless communication receiving system, comprising: wireless communication channel information includes information about both of the communication channels, in terms of the amount of ISI and MAI which cause fading of the communication signal (part I, paragraph 3; part II A-B).

As to claims 5 and 14, Wang teaches an apparatus and method for a wireless communication receiving system, comprising: wireless communication channel information includes information about both of the communication channels, in terms of the amount of ISI and MAI which cause fading of the

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communication signal (part I, paragraph 3; part II A-B). It is inherent that one channel has more fading than a second channel, as the amount of ISI and MAI is different for each channel, therefore, one channel will have more fading than another channel.

As to claims 6 and 15, Wang teaches an apparatus and method for a wireless communication receiving system, comprising: one channel has more fading than a second channel, as the amount of ISI and MAI is different for each channel; it is inherent that one channel will have more fading than another channel. Therefore, the quality of the communication channel associated with one SISO decoder will be inferior to the quality of the communication channel associated with another SISO decoder (part I, paragraph 3; part II A-B).

As to claims 7 and 16, Wang teaches an apparatus and method for a wireless communication receiving system, comprising: wireless communication channel information includes information about the quality of one of the communication channels, in terms of the amount of ISI and MAI in the channel which cause noise in the communication signal (part I, paragraph 3; part II A-B).

As to claims 8 and 17, Wang teaches an apparatus and method for a wireless communication receiving system, comprising: wireless communication channel information includes information about one of the communication channels, in terms of the amount of ISI and MAI in the channel which cause fading of the communication signal (part I, paragraph 3; part II A-B).

As to claims 9 and 18, Wang teaches an apparatus and method for a wireless communication receiving system, comprising: a probability generator (part IIB, equations 5-7; figure 1, SISO multiuser detector) coupled to the antenna for generating a plurality of probabilities of the communication symbol that the communication symbol has ones of a plurality of possible values of the communication symbol.

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### **Conclusion**

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

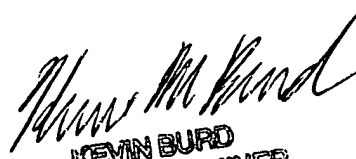
- i. U.S. Patent 6671338, Gamal et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anika Talapatra whose telephone number is 571-272-6039. The examiner can normally be reached on Monday to Friday, 08:00-16:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A.T.

  
KEVIN BURD  
PRIMARY EXAMINER